



The Multilateral Initiative on Malaria (MIM) is an alliance of organisations & individuals concerned with malaria. It aims to maximise the impact of scientific research against malaria in Africa, through promoting capacity building & facilitating global collaboration & coordination.

ISSUE 2, SEPTEMBER 1998

Welcome to the second edition of the MIM Newsletter. There have been many developments since the last edition, including the design of a new MIM logo. We hope it meets with your approval!

In August, discussions took place at WHO to establish a cohesive future relationship between the activities of MIM and the Roll Back Malaria Project. You can read about the complementary roles that each initiative will play in the fight against malaria in an article by Dr Catherine Davies of the Wellcome Trust. In July, the steering committee for the MIM African Malaria Conference met in Oxford. We are pleased to announce the date and venue for this very important MIM event. This Newsletter also includes an article on the MIM/TDR Taskforce on Malaria Research Capability Strengthening in Africa, by Dr Fabio Zicker of TDR. A brief report on the Fifth *falciparum* genome meeting and results from an analysis of malaria research publications from Africa are also included.

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Meeting with WHO: The Jigsaw Pieces Assemble

Momentum to address the resurgent problem of malaria has been growing at a remarkable pace over the past few years. Strong international commitment has developed, and action has been taking place in a range of different sectors: in ministries of health in malaria endemic countries, research institutes internationally, agencies funding research and disease control activities, organisations concerned with health and economic development, and the private sector.

A series of different initiatives have emerged, each of these aiming to develop a more coherent approach to efforts that have previously been too fragmented to achieve a strong and sustainable impact. The Multilateral Initiative on Malaria (MIM) is one of these initiatives: its principal objective being to encourage and facilitate global collaboration and co-ordination in order to maximise the effectiveness of international scientific research efforts. It also aims to increase the overall level of international research activity, and is particularly concerned with capacity building in Africa and ensuring that the fruits of research actually have an impact on mortality and suffering. One of the outcomes of this initiative has been an unprecedented level of interaction between research funding organisations internationally, an effect that will surely bring benefits to other research areas. Another important

outcome has been increased dialogue between organisations funding research and those supporting control programmes.

Developments have also taken place in the disease control arena. In 1996, discussions between the WHO Regional Office for Africa (AFRO) and the World Bank were initiated, leading to plans for a malaria control programme to be targeted at malarious areas across the African continent where the major global burden of disease rests. Most significant of all, Dr Gro Harlem Brundtland, the new Director General of WHO, has recognised not only the impact of the escalating mortality from malaria, but also the huge momentum for action that has developed internationally to address this problem. In her acceptance speech in May 1998, Dr Brundtland announced a major new programme to 'Roll Back Malaria', and since taking up office in July, she has been working to put in place the plans to implement this programme. In reflection of WHO's remit, Roll Back Malaria (RBM) will be global, aiming to add value to and co-ordinate all major efforts against malaria. Further details of these, and other initiatives, are reported in the recent article by Nabarro & Tayler (Science: 280, 2067-2068, 1998).

So how do these initiatives relate to each other? In recent months, the picture has become increasingly complete as the different areas of activity fall into place. It is now emerging that the RBM project will be spearheaded in Africa where it will complement and integrate with the African Initiative on Malaria. All partners involved recognise the need to work together for maximal effect, and to bring to the project their respective expertise.

In early August of this year, discussions took place in Geneva between Dr Brundtland, Dr Tore Godal (the acting Project Manager of RBM), and Dr Robert Howells and Dr Catherine Davies of the Wellcome Trust in its role as the coordinator of MIM. The purpose of these discussions was to clarify and strengthen links between RBM and MIM. Recognising the critical importance of full integration of research and control efforts for a successful campaign against malaria, Dr Brundtland expressed a commitment to work in collaboration with MIM as the focus of international malaria research activities. Malaria is complex, taking on different guises in different locations.

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Further research is required not only to generate knowledge for optimising the application of existing tools, but also to increase our armamentarium against malaria. Over-reliance on one or two tools is a mistake of previous campaigns that should be avoided if possible. The full repertoire of research funded internationally from diverse sources must therefore be brought to bear in planning and implementing new control programmes.

Within WHO, RBM is being structured so as to draw together all relevant activities into a unified approach, breaking down any previous barriers between divisions, programmes and offices. The opening of dialogues between scientists and implementers is a theme that features strongly in the objectives of the MIM African Malaria Conference (see below). WHO has responded enthusiastically to the opportunities offered by the Conference in facilitating uptake of research results into policy and practice, and promoting research that will provide the knowledge for evidence based planning of control programmes. It is intended that these dialogues will be part of a growing iterative process that will extend well beyond the Conference itself. Recognising the complementarity of RBM and MIM, and in order to streamline meetings activities, it has been agreed that the African Malaria Conference should be a collaborative venture between MIM and RBM.

The magnitude of global attention focused on malaria from agencies of all kinds, including the priority given by WHO, is the greatest to tackle this disease since the eradication era of the 1950s. It is hoped that over the next few years, the various organisations internationally will capitalise fully on this remarkable foundation, by working together according to a cohesive broad plan to achieve a significant and lasting impact on the burden of disease from malaria. It is also hoped that the model developed for MIM will be applied more generally to promote greater international collaboration to tackle other major diseases of the tropics.

MIM AFRICAN MALARIA CONFERENCE in conjunction with the Southern African Malaria Conference and 'Roll Back Malaria'.

Steering Committee Meeting, Oxford July 31st 1998

Plans for a major malaria conference in Africa are now taking shape. The Steering Committee has been established and members met for the first time at the end of July. We are delighted to announce that the MIM African Malaria Conference (AMC) will take place in **Durban, South Africa, 15-19th March 1999**. A date for all your diaries! Dr Brian Sharp from the Malaria Research Programme of the South African MRC, has been elected to chair the Steering Committee.

We are also pleased to report that the 1999 MIM Conference will be held in conjunction with the Southern African Malaria Conference, a gathering that has common objectives to the MIM meeting and that was planned for similar dates. The MIM AMC will be open to malaria researchers internationally and to health professionals and other individuals involved in malaria control activities across Africa.

Objectives

The MIM Conference will be a forum to stimulate and enable effective, unified action against malaria in Africa. It will aim to promote high quality scientific research in partnership with control programmes across the African continent. In reflection of this aim, it has been agreed that the Conference will be a collaborative venture between MIM and the major malaria control initiatives currently being launched (as outlined above). The Conference will span the full range of malaria research in Africa, but will have a particular emphasis on the research agenda required to underpin control activities.

The conference will aim to:

- Promote dialogues at the research-implementation interface.
- Build African malaria research capacity by promoting scientific collaborations across Africa and internationally, and increasing awareness of training opportunities.
- Strengthen pan-African and regional research and control networks.
- Report on the progress of MIM activities.

The Conference has been received with enthusiasm by funding agencies, and many have expressed their willingness to provide support. Sponsorship will be available for some delegates, and a number of scholarships specifically for junior research scientists will be offered by competition.

Focus Areas

Keynote scientific addresses and reviews will be presented in the following areas:

- **Malaria control and its management** Including reviews of the current status of control programmes in Africa
- **Antimalarial drugs and resistance**
- **Economics of malaria**
- **Health information systems and surveillance**
- **Vector biology and control**
- **Malaria vaccines**
- **Severe malaria and pathogenesis**
- **Communications and connectivity in Africa**
- **Ethics and research methodology**
- **Research networks in Africa**

Workshops and discussion groups will be convened to discuss country and regional research or control issues, and specific scientific issues.

The final day of the conference will be devoted to a **Workshop on Research Training and Capacity Development in Africa**.

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Steering Committee:

Chairperson: Dr B Sharp (South Africa)
Dr F Binka (Navrongo, Ghana)
Prof O Doumbo (Bamako, Mali)
Prof B Greenwood (LSHTM, UK)
Dr P Kazembe (Ministry of Health, Malawi)
Dr A Kitua, (NIMR, Tanzania)
Mr S Kunene (Malaria Control Programme, Swaziland)
Dr R Leke (University of Yaoundé, Cameroon)
Prof K McAdam (MRC laboratories, The Gambia)
Dr L Miller (NIAID, USA)
Prof A Oduola (University of Ibadan, Nigeria)
Dr O Puijalon (Institut Pasteur, France)
Dr R Snow (Nairobi, Kenya)
Dr T Sukwa (TDRC, Ndola, Zambia)
Dr J-F Trape (ORSTOM, Dakar, Senegal)
Prof O Walker (WHO/AFRO, Zimbabwe)

Enquiries about the MIM African Conference should be directed to:

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The MIM Conference represents an immensely important opportunity in the future development of malaria research in Africa, particularly regarding the co-ordination of research activities with operational needs of national control programmes.

The flyer formally announcing the conference will be distributed shortly. We hope to see you in Durban in March!

Action on Antimalarial Drug Resistance

Since the MIM meeting on 'Antimalarial drugs and resistance' held in Geneva in May of this year (reported in first MIM Newsletter) there has been considerable progress in a number of key areas.

Plans are coming together for a series of studies to assess artemisinin derivatives combined with other antimalarial drugs. This 'combination therapy' approach is recognised to offer considerable potential benefits for extending the life-span of the limited number of existing antimalarial drugs. It is an idea that has been developed in particular by Professor Nicholas White, a Wellcome Trust Research Fellow based at Mahidol and Oxford Universities. Several research groups are committed to ensuring that the usefulness of this approach is assessed without delay, and that plans are put in place for implementation should the results prove to be encouraging. Current malaria control programmes are heavily dependent upon chemotherapy, and the alarming spread of drug resistant strains of malarial parasites demands urgent action in order to avert a possible health disaster. Safety and efficacy studies on potential drug combinations are an essential preliminary step prior to any decisions on deployment, and such studies are now planned or have commenced at various sites in Africa, Asia and South America. A number of agencies, including WHO/TDR, the Wellcome Trust, CDC, and PAHO, have committed funds or expressed an interest in funding, properly constructed trials. The TDR Antimalarial Drug

Resistance and Policy Group, led by Dr Piero Olliaro, is ensuring co-ordination and comparability between studies carried out at the various sites, with input from a number of external researchers. A TDR meeting of investigators from a range of potential study sites is planned for September to develop plans further, and this will include representatives of studies to be considered for funding by the Wellcome Trust.

In June of this year, Dr Peter Bloland of CDC brought together a small group of experts in Nairobi, Kenya to develop and discuss a series of 'position papers' on critical issues relating to the use of antimalarial drugs in Africa. These papers will form a basis for a workshop on 'Confronting the challenge of antimalarial drug resistance in Africa' which will take place November 9-12th 1998 in Harare and which will include participation by research scientists, policy makers and implementers.

There has also been progress in discussions amongst research groups and funding agencies to develop a more coherent approach to monitoring antimalarial drug resistance in Africa, that effectively utilises available data.

Further developments in this area will be reported in the future issues of the MIM Newsletter

CAPACITY BUILDING IN AFRICA

A major objective of MIM is to strengthen and further develop research capacity within Africa through international scientific partnerships. Here, Dr Fabio Zicker describes a new funding scheme that has been established as a result of MIM to address this objective.

MIM/TDR Task Force on Malaria Research Capability Strengthening in Africa

This Task Force, co-ordinated by the UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR), is a collaborative funding strategy involving multiple agencies and governments. It promotes capacity building through supporting research activities in malaria-endemic countries in the context of the Multilateral Initiative on Malaria in Africa.

During the first meeting of the Task Force in February 1998, 63 proposals involving 40 countries (17 from Africa) and 161 partner institutions/research groups were reviewed. The proposals covered a wide range of topics including the clinical and molecular basis of drug resistance, chemoprophylaxis in pregnancy, drug policy, epidemiology of immune response, evaluation of natural products, epidemiology of parasite diversity, home-management of malaria, and vector biology and control. The Task Force recommended funding 15 full proposals, involving 20 African, 5 European countries and the USA, with budgets of US\$92,000-250,000 for the first year of funding. Fourteen PhD and 6 MSc Research Training Grants were approved in connection with the funded projects. In addition, support was recommended for 6 proposals to promote interaction between 12 research partners through improvement of proposals and collection of preliminary data. Projects dealing with malaria drug resistance and policy are to be managed in a fast-track mode, they will receive additional technical and financial support to optimise and speed up operations. A workshop

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involving the principal investigators of these projects and additional experts has been planned in order to develop/standardise common and complementary protocols to allow comparison of results.

Priority areas identified for support are:

1. Chemotherapy and drug policy (including the evaluation of drug combinations and monitoring of drug resistance);
2. Epidemiology, mostly aspects related to parasite diversity and immune response, transmission, disease pattern and new methods of intervention;
3. Pathogenesis, covering severe and complicated disease;
4. Studies on vectors;
5. Health systems and operational research including malaria management at the household level.

The grants are expected to strengthen core African research groups in developing effective control tools for malaria and improving relevant health policy. The partnerships will provide opportunities for studying specific aspects of malaria in multiple sites, with or without a multidisciplinary approach. Regional networks will be created and research carried out in the proximity of control activities. The strategic approach, priority areas and project profiles constitute a logical scientific framework for implementing the Roll Back Malaria Initiative under the leadership of the new WHO administration. The basis for action will be partnership, regional and national approaches, collaboration between different groups, close integration between research and control, and resources mobilisation at country level.

The strong response to the call for proposals demonstrated that there is a critical mass of capable scientists in Africa who can lead the research efforts in the field.

Applications should accord with the project profile established by the Task Force. They should be submitted and co-ordinated by an African national scientist working in a research group in Africa and include at least two African research partner institutions (one established and one emerging) and at least one non-African partner, which could be an international institution in Africa.

The applications are reviewed and grants awarded on the basis of scientific merit, relevance, and partnerships that promote capacity building and human resource development in Africa.

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Application forms can be downloaded from
<http://www.who.ch/tdr>.

MIM Analysis of Current Malaria Research Capacity in Africa

Measuring progress towards the MIM objective of developing African malaria research capacity requires indicators of the current level of activity. One such measure

is the number of research articles published annually by institutes located in Africa. Here we present some results from bibliometric analyses carried out on African malaria research outputs.

- ◆ 3697 malaria research papers were published worldwide between 1995-1997
- ◆ Over 650 of these had at least one author based in Africa.
- ◆ Seventeen centres in Africa published in excess of 12 articles during the period 1995-1997.
- ◆ The majority of collaborations were between Africa and the UK, USA and France.
- ◆ Only 36 articles involved collaboration between two or more African countries.

Methods

International malaria research publications from 1995-1997 were selected from the Scientific Citation Index (SCI) and Medline databases using a specific search strategy. Publications with at least one author address in Africa were then selected and these were analysed further to examine:

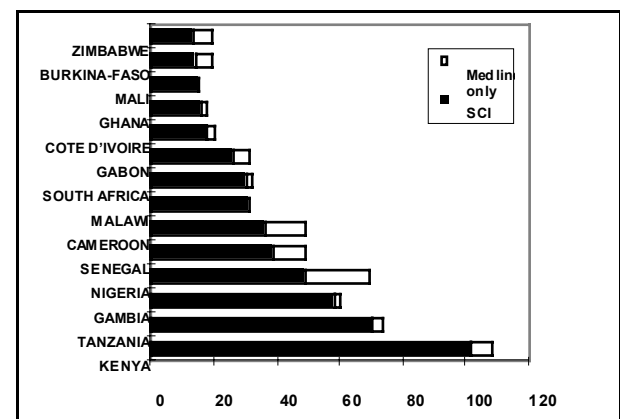
- The productivity of individual countries
- International collaboration patterns
- Focus research areas
- The most active research centres in Africa

Countries Publishing in Africa

556 malaria related publications with at least one author address in Africa were found in the SCI search, with an additional 104 relevant papers recorded in Medline.

An analysis of the countrywise distribution of malaria related papers for the period 1995-1997, revealed that Kenya participated in the most publications (108), followed by Tanzania (74), Nigeria (69), Gambia (60), Senegal (39) and Cameroon (39) (Figure 1).

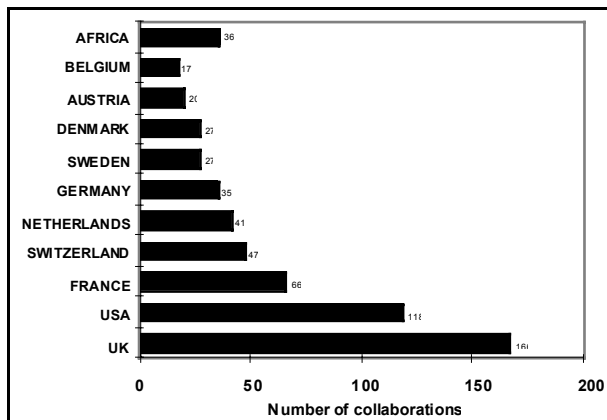
Figure 1: Countrywise distribution of African malaria papers 1995-1997 (n=660)



Countries Collaborating with Africa

Examination of the countries collaborating with Africa revealed that the UK, followed by the USA and France collaborated most frequently. Collaborations across Africa were less frequent: only 36 papers involved more than one African country.

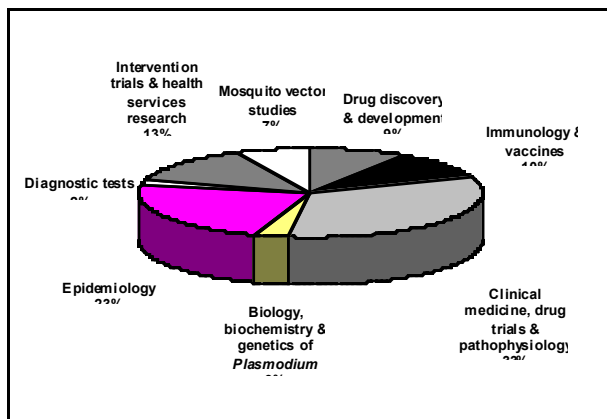
Figure 2: Scientific collaborations with Africa, SCI publications 1995-1997 (n=556)



Research Categories

The distribution of the African papers across broad categories of research are shown in Figure 3. Not unexpectedly, the emphasis of research was on clinical and field studies: publications were most numerous in the category 'clinical medicine, drug trials and pathophysiology', followed by 'epidemiology' and 'intervention trials and health services research' (categories defined in PRISM/Wellcome Trust Report: Malaria Research An Audit of International Activity, 1996). Studies of the biology, biochemistry & genetics of *Plasmodium* accounted for only 3% of total output.

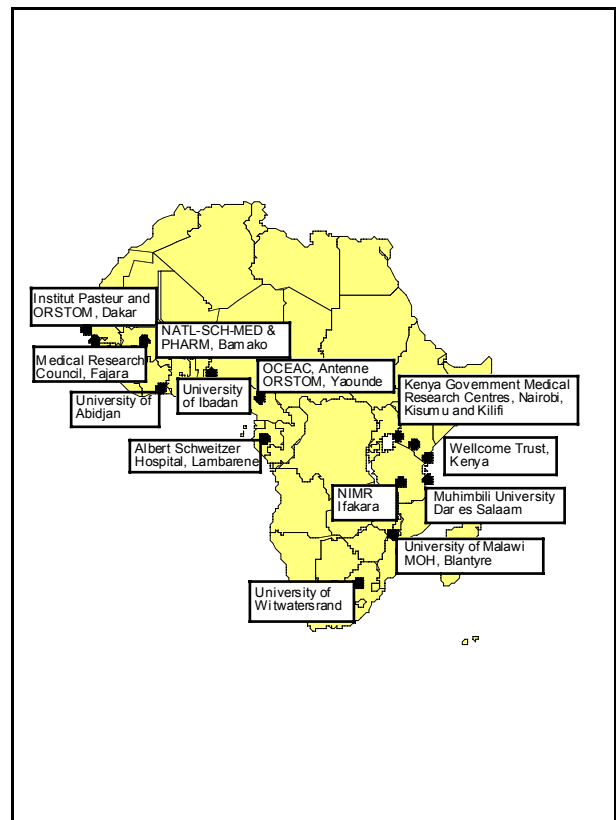
Figure 3: African malaria research publications (Medline & SCI) by major research category n=660



Top publishing centres in Africa

Analysis of author addresses revealed 17 African centres that published 12 or more malaria related papers over the period 1995-1997 (SCI database only). The most prolific publishing institute in Africa during this period was The MRC laboratories, Fajara, The Gambia, with 57 malaria papers, followed by KEMRI, Kilifi, Kenya with 48, and OCEAC, Yaounde, Cameroon and the University of Ibadan, Nigeria with 30 papers.

Figure 4: Highest publishing research centres in Africa



Full details of these results will be published during 1999. Further complementary studies are ongoing to review currently available training opportunities in health research for scientists in the tropics. This includes a survey of schemes offered by funding agencies. In addition, a questionnaire is being sent out to malaria research centres in Africa to gather data on current research capacity and to seek opinion on training needs.

These surveys and bibliometric analyses will provide a valuable factual base of evidence to inform discussions on future policy on research training for developing country scientists. The full MIM report on these results will be published in 1999 and will be freely available as a resource to scientists and funding organisations.

The Wellcome Trust, on behalf of MIM, is carrying out a survey on infrastructure, capacity building and training in Africa. Questionnaires are being sent to malaria research centres in Africa. If you have not received a questionnaire and would like to take part in this survey, please contact Dr Pauline Beattie at The Wellcome Trust.
 ☎ +44 171 611 8567 Fax: +44 171 611 7288 Email p.beattie@wellcome.ac.uk

FIFTH *FALCIPARUM* GENOME MEETING June 30th-1st July, Hinxton, UK

Remarkable progress in sequencing the genome of the *Plasmodium falciparum* malarial parasite was reported at a recent meeting held at Hinxton Hall, Cambridgeshire, UK. The meeting brought together investigators from UK and US sequencing centres participating in the '*falciparum* genome project'. This project is supported by a consortium of funding agencies and is an excellent example of a collaborative, coordinated approach, by both scientists

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and funders, to achieve a large-scale scientific objective (for further details see *Parasitology Today*, 14, 342-344, 1998).

Technical challenges posed by the AT rich genomes of *Plasmodium* species had raised significant doubts as to the feasibility of the *falciparum* project at its initiation in 1996. These doubts, however, now seem a long way behind as researchers at the Hinxton meeting reported that sequencing of chromosomes 2 and 3 is nearly complete. Shotgun cloning of chromosomes 1 and 4 is finished and it is anticipated that sequencing of these will be at the closure stage by next February. Cloning of chromosomes 5-9 and 12-14 is underway. A further significant technical advance has been the development of an optical mapping technique by Professor David Schwartz of New York University that is now enabling high resolution mapping of the *falciparum* genome in a time-scale that was previously inconceivable.

The Hinxton meeting was the fifth in a series of regular meetings that provide an opportunity for researchers and funders participating in the sequencing consortium not only to report on progress, but to share experiences and to plan strategies for efficient exploitation of sequence information. The meeting gave particular consideration to ensuring full accessibility of data to the wider malaria research community through establishing optimally designed database systems. Plans were also put in place for computer-based tutorials on 'accessing and analysing genome data' to be held at a number of meetings during 1998; the aim being to raise awareness of the considerable opportunities offered by the genome project and to encourage 'mining' of data by scientists in a wide range of disciplines.

Presentations at the meeting demonstrated that analysis of accumulating sequence data is already beginning to provide important insights into the unusual properties of the *falciparum* genome and its encoded proteins. Researchers involved in other sequencing projects, such as the yeast genome project, also provided valuable input on effective approaches for using genome information, based on their experiences in moving from sequence data to functional analysis of genes and proteins, including the use of microarray technology. A series of workshops were proposed to allow in depth consideration of specific aspects of the *falciparum* genome project, such as database development and drug and vaccine discovery.

A full report on the meeting will be posted on the internet shortly. The next meeting will be held 29 January 1999 in Washington DC, USA.

Don't forget to check out the MIM websites:
www.wellcome.ac.uk/MIM www.malaria.org/MIM

Sept	Tropical Medicine		
21 - 23 Sept	British Society for Parasitology Malaria Meeting	Edinburgh UK	BSP
22-24 Sept	Monitoring of Insecticide Resistance	Cote d'Ivoire	AFRO/WHO, CTD/MAL
18-22 Oct	47th American Society of Tropical Medicine & Hygiene Annual Meeting	San Juan, PR, USA	ASTMH
9-12 Nov	Confronting the challenge of antimalarial drug resistance in Africa: Main Workshop	Harare, Zimbabwe	CDC Wellcome Trust
16-19 Nov	Malariology Centenary Conference: Malaria challenges after 100 years	Rome, Italy	Accademia Nazionale dei Lincei; Royal Soc Trop Med & Hyg, Italian Soc of Parasitology
Nov	AMVTN: Workshop on Good Clinical /Laboratory Practice	Noguchi, Ghana	AMVTN Workshop

1999

Date	Title/Objectives	Location	Organizers Participants
Early 1999	Meeting: Confronting the challenge of antimalarial drug resistance in Africa	Harare, Zimbabwe	CDC/WHO/AFRO
29 Jan	Sixth <i>falciparum</i> genome meeting	Washington Dc, USA	
March 1999?	WHO/AFRO Taskforce on Malaria Control	Africa	WHO/AFRO
15-19 March	MIM African Malaria Conference: for malaria researchers and health professionals	Durban South Africa	MIM
22-26 March	MIM/TDR Taskforce for Malaria Research Capability Strengthening in Africa: Grant Awards Meeting	Africa	Co-ordinated by WHO/TDR
Spring	Drugs against parasitic diseases workshop	Montpellier France	INCO-DC COST/WHO
19-23 April	20th African Health Sciences Congress	Accra, Ghana	Noguchi Memorial Institute for Medical Research
April	International Centers for Tropical Disease Research Meeting	Bethesda, MD, USA	NIAID
22-24 June	CDC Meeting on Epidemiology of Infectious Diseases	Dakar, Senegal	Organised by CDC

We hope that all the information contained in this newsletter is accurate. If there is any information which is missing or inaccurate, we would like to hear from you. The Wellcome Trust, as coordinator of MIM for 1998, depends on you to provide us with current information on all malaria activities, so that we can effectively coordinate and disseminate this information. We welcome contributions and articles from our MIM colleagues, and look forward to hearing from you.

Diary of Events

1998

Date	Title/Objectives	Location	Organisers Participants
12 Sept	Artemisinin drug combinations: An investigators meeting	Liverpool UK	TDR Wellcome Trust
14-18	2nd European Congress on	Liverpool, UK	LSTM, UK